ENERGY EFFICIENCY TECHNOLOGY IN OFFICE AND COMMERCIAL BUILDINGS

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DEDICATION

To my loving wife

Jennifer Thong

For her unending love, support and understanding

To my lovely children

Adrianna Ashley Then

Bartholomew Sean Then

For their patience during the course of my studies

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ABSTRACT

The purpose of this study is to investigate on how the designs of the energy efficiency technology used in the Green building technology for building can be replicated in terms of its performance and application. The energy efficiency technology can be translated to the possible gains in playing the role of reducing the carbon footprint and also the cost savings derived from transferring the EE technology to existing building can encourage all new and future development to actively engage in the Green Building Technology. The saving derived from the implementation of green technology systems implemented in some commercial and office building in Malaysia can be shared to help other developers, Engineers, Architect, and building owners to establish that the building energy systems' particularly the air-conditioning system and its subsystems' is able to play a major role in the possibility of creating awareness of Energy Efficiency technology and eventually cost saving for both commercial and office building in Malaysia. The investigate conducted and data quantify from the 2 scenario; firstly by retrofitting of the existing building and , secondly data from EE designed office buildings', the observation is clear that the energy efficient technology can be replicated and will yield a potential saving s even for existing building owners who have retrofitted their building. Whereas for building that is designed to be energy efficient has demonstrated that there are great possibility of cost saving and at the same time play its part in helping in promoting Green technology as part of their corporate social responsibility's role to provide a clear perspective to Developers to actively utilize Energy Efficient technology in future developments . The simulation results further verify the correctness of the energy saving potential.

ABSTRAK

Tujuan kajian ini adalah untuk menyiasat bagaimana reka bentuk teknologi kecekapan tenaga yang digunakan dalam teknologi Bangunan Hijau untuk bangunan boleh ditiru dari segi prestasi dan penggunaannya. Teknologi kecekapan tenaga boleh diterjemahkan kepada keuntungan mungkin memainkan peranan untuk mengurangkan kesan karbon dan juga penjimatan kos yang diperolehi dari pemindahan teknologi EE untuk bangunan yang sedia ada boleh menggalakkan semua pembangunan baru dan masa depan untuk melibatkan diri secara aktif di Bangunan Teknologi Hijau. Penjimatan yang diperolehi daripada pelaksanaan sistem teknologi hijau dilaksanakan di beberapa bangunan komersil dan pejabat di Malaysia boleh dikongsi bersama bagi membantu permaju lain, Jurutera, Arkitek, dan pemilik bangunan untuk membuktikan bahawa terutamanya sistem dan penghawa dingin sistem tenaga bangunan 'yang subsistem ' dapat memainkan peranan utama dalam kemungkinan mewujudkan kesedaran Tenaga teknologi Kecekapan dan akhirnya menjimatkan kos untuk kedua-dua bangunan komersil dan pejabat di Malaysia. Menyiasat dijalankan dan data kuantiti dari 2 senario; pertama oleh retrofitting bangunan yang sedia ada dan, kedua data dari EE bangunan pejabat direka ', pemerhatian adalah jelas bahawa teknologi tenaga yang cekap boleh ditiru dan akan menghasilkan potensi penjimatan walaupun untuk pemilik bangunan yang sedia ada yang telah dipasang bangunan mereka. Manakala bagi bangunan yang direka untuk menjadi cekap tenaga telah menunjukkan bahawa terdapat kemungkinan besar penjimatan kos dan pada masa yang sama memainkan peranan dalam membantu dalam mempromosikan teknologi hijau sebagai sebahagian daripada peranan tanggungjawab sosial korporat mereka untuk memberikan perspektif yang jelas kepada Pemaju untuk aktif menggunakan teknologi Cekap Tenaga dalam pembangunan masa depan. Simulasi keputusan lagi mengesahkan kebenaran penjimatan tenaga potensi.